

Serial No. 09/777,091

PATENT

- 1 55. (Amended) An implantable valve for a bodily passage of tubular
2 shape, comprising:
3 a support frame configured for expansion to conform to a wall of the
4 bodily passage, said support frame when expanded providing a plurality
5 of side elements each defining a path extending at least partially
6 longitudinally along the wall and at least partially circumferentially around
7 the wall,
8 a plurality of leaflets comprising an extracellular collagen matrix
9 material, each leaflet thereof having a body extending from a wall-
10 engaging outer edge to an inner edge proximate a corresponding inner
11 edge of at least one other leaflet of the plurality of leaflets,
12 the inner edges of said plurality of leaflets cooperable to define an
13 opening therebetween to permit fluid flow in a first direction along the
14 bodily passage, and further cooperable to engage each other sufficiently to
15 restrict fluid flow in a second direction opposing the first direction,
16 the outer edge of each one of the plurality of leaflets attached along
17 one side element of said plurality of side elements and thereby adapted to
18 directly engage the wall of the bodily passage therearound and provide
19 ingrowth of adjacent native tissue into the extracellular collagen matrix
20 material.

Please add the following claims:

- 1 56. (New) The implantable valve of claim 55 wherein the collagen matrix
2 material comprises submucosal tissue.
- 1 57. (New) The implantable valve of claim 55 wherein the collagen matrix
2 material comprises small intestinal submucosa.

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1 58. (New) An implantable valve for a bodily passage of tubular shape,
2 comprising:
3 a frame that includes a plurality of legs, each of the legs originating
4 from a pair of bends located about a first end of the implantable valve, and
5 extending in an opposite direction therefrom, each of the plurality of legs
6 terminating at a second end of the implantable valve opposite the first end
7 such that the plurality of legs generally assume a serpentine configuration
8 along the circumference of a bodily passage when situated therein,
9 a plurality of leaflets, each leaflet comprising a covering that includes
10 one or more flexible materials, the leaflet including a body that comprises
11 a wall-engaging outer edge and an inner edge, the outer edge at least
12 partially attached to, and reinforced by one of the plurality of legs, the outer
13 edge and the associated leg adapted to sealingly engage the inner wall of
14 the bodily passage,
15 wherein the body of the leaflet extends inward from the wall of the
16 bodily passage and extending toward the first end of the implantable valve
17 where it terminates at the inner edge, the body and inner edge traversing
18 the lumen of the bodily passage when situated therein and being
19 configured such that the leaflet is cooperable with at least one other leaflet
20 to define an opening that permits positive flow of fluid therethrough in a
21 first direction, while the plurality of leaflets are further adapted to trap
22 between the leaflets and the inner wall of the bodily passage fluid flowing
23 in a second direction opposite the first direction and seal against one
24 another to restrict fluid flow in said second direction; and
25 wherein the frame is adapted to assume a plurality of configurations,
26 a first configuration of the plurality of configurations being a generally flat
27 plane.

1 59. (New) An implantable valve for a bodily passage of tubular shape,
2 comprising:

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3 a frame that includes a plurality of legs, each of the legs originating
4 from a pair of bends located about a first end of the implantable valve, and
5 extending in an opposite direction therefrom, each of the plurality of legs
6 terminating at a second end of the implantable valve opposite the first end
7 such that the plurality of legs generally assume a serpentine configuration
8 along the circumference of a bodily passage when situated therein,
9 a plurality of leaflets, each leaflet comprising a covering that includes
10 one or more flexible materials, the leaflet including a body that comprises
11 a wall-engaging outer edge and an inner edge, the outer edge at least
12 partially attached to, and reinforced by one of the plurality of legs, the outer
13 edge and the associated leg adapted to sealingly engage the inner wall of
14 the bodily passage,
15 wherein the body of the leaflet extends inward from the wall of the
16 bodily passage and extending toward the first end of the implantable valve
17 where it terminates at the inner edge, the body and inner edge traversing
18 the lumen of the bodily passage when situated therein and being
19 configured such that the leaflet is cooperable with at least one other leaflet
20 to define an opening that permits positive flow of fluid therethrough in a
21 first direction, while the plurality of leaflets are further adapted to trap
22 between the leaflets and the inner wall of the bodily passage fluid flowing
23 in a second direction opposite the first direction and seal against one
24 another to restrict fluid flow in said second direction; and
25 wherein the frame is adapted to assume a plurality of configurations,
26 a first configuration of the plurality of configurations being a generally flat
27 plane; and
28 wherein the covering includes two leaflets such that when the frame
29 in the generally flat configuration generally assumes a diamond shape with
30 the inner edges of the two leaflets defining a slit therebetween.

Remarks